

U.S. COAST GUARD  
ENVIRONMENTAL ASSESSMENT  
FOR

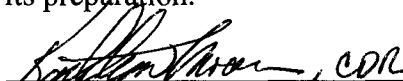
VOLUNTARY BEST MANAGEMENT PRACTICES FOR VESSELS DECLARING  
NO BALLAST ONBOARD THAT ENTER THE GREAT LAKES

This Coast Guard environmental assessment was prepared in accordance with Commandant's Manual Instruction M16475.1B and is in compliance with the National Environmental Policy Act of 1969 (Pub. L. 91-190) and the Council of Environmental Quality Regulations dated 1 July 1986 (40 CFR Parts 1500-1508)

This environmental assessment serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement or a finding of no significant impact. This environmental assessment concisely describes the proposed action, the need for the proposal, the alternatives, the environmental impacts of the proposal and alternatives, comparative analysis of the action and alternatives, a statement of environmental significance, and lists the agencies and persons consulted during its preparation.

1/3/06

Date

, COR

Preparer

Chief, Environmental Standards Division

1/17/06

Date



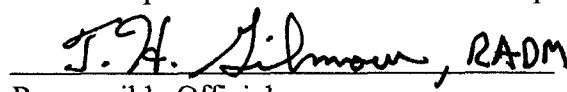
Environmental Reviewer

Chief, Environmental Management Division

In reaching my decision on the USCG's proposed policy action, I have considered the information contained in this EA on the potential for environmental impacts.

1/19/06

Date

, RADM

Responsible Official

Assistant Commandant for Prevention

## **1.0 Purpose and Need for the Proposed Action**

A major pathway for the introduction of aquatic nonindigenous species (NIS) is ballast water discharge from vessels entering U.S. waters after operating outside of the Exclusive Economic Zone (EEZ). NIS are organisms found outside of their native or historical range. In cases where they invade native ecosystems, NIS can alter aquatic and marine ecosystems and biodiversity, impact commercial and recreational fisheries, cause infrastructure damage, increase potential risks to human health, and generally cause detrimental economic impacts.

Vessels carrying ballast water that enter the Great Lakes after operating outside the U.S. Exclusive Economic Zone (EEZ) are required to comply with the Great Lakes ballast water management requirements found in 33 CFR Part 151, Subpart C. Ballast water means any water and suspended matter taken on board a vessel to control or maintain, trim, draught, stability, or stresses of the vessel, regardless of how it is carried. Vessels declaring no ballast onboard (NOBOB) are those vessels that have discharged ballast water in order to carry cargo, and as a result, have only unpumpable residual water and sediment remaining in tanks. A large number of vessels that call on the Great Lakes are NOBOBs fully loaded with cargo that consequently cannot conduct a full mid-ocean exchange enroute to the Great Lakes. However, NOBOBs have the potential to carry NIS in their empty tanks via residual ballast water and/or accumulated sediment. Once NOBOBs enter the Great Lakes, discharge all or some of its cargo and take up ballast water, this water mixes with the residual water and sediment, and if this mixed ballast water is subsequently discharged into the Great Lakes, may provide a mechanism for NIS to enter the Great Lakes. Therefore, the Coast Guard is issuing best management practices for vessels with ballast tanks with residual ballast water and sediment. While this policy targets vessels declaring NOBOB entering the Great Lakes, the recommended management practices are applicable to all vessels that enter the Great Lakes with empty ballast tanks that may be with filled with ballast water and discharged within the Great Lakes.

## **Environmental Evaluation**

This Environmental Assessment (EA) will evaluate the proposed best management practices as well as the “no action” alternative. It has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (P.L. 91-190). NEPA is intended to help public officials make decisions that are based on an understanding of environmental consequences, and to take actions that protect, restore, and enhance the environment. These decisions are to be made based on accurate scientific analysis, expert agency comments, and public scrutiny of readily available environmental information. Federal agencies are obligated to follow the provisions of NEPA to identify and assess reasonable alternatives to the proposed action that will avoid or minimize any adverse effects upon the quality of the human environment before proceeding with the proposed action.

The purpose of this EA is to document the manner in which the U.S. Coast Guard considered the potential for impacts of the policy on the aquatic and human environment. The EA contains an assessment of the potential for environmental impacts associated with asking all vessels entering the Great Lakes with empty ballast tanks that have operated outside of the EEZ to conduct best management practices. Based on the findings in this EA, the U.S. Coast Guard will take one of the following two actions:

If it is determined that the Proposed Action will not have a significant impact on the aquatic and human environment, a Finding of No Significant Impact (FONSI) will be issued; or if it is determined that the Proposed Action may have a significant impact on the aquatic and human environment, the U.S. Coast Guard will prepare an Environmental Impact Statement (EIS) to further analyze identified impacts.

## **2.0 ALTERNATIVES**

### **Description of Alternatives**

#### **Alternative 1: No Action – Great Lakes Mandatory Ballast Water Management Program**

Under Alternative 1, ballast water management would remain mandatory for vessels carrying ballast water prior to entering the Great Lakes (58 FR 18334, April 8, 1993) and the Hudson River north of the George Washington Bridge (59 FR 67632, December 1994). Vessels not carrying ballast water are not required to conduct ballast water management.

Existing regulations require mandatory ballast water management for all applicable vessels bound for the Great Lakes or the Hudson River north of the George Washington Bridge that conduct all or part of their voyage beyond the U.S. Exclusive Economic Zone (EEZ). Applicable vessels are those equipped with ballast water tanks. These rules, as finalized, are contained in 33 CFR 151 subpart C.

1. *Exchange ballast water beyond the U.S. EEZ, in an area more than 200 nautical miles from shore and in waters more than 2,000 meters deep.* This refers to conducting mid-ocean ballast water exchange, exchanging ballast water obtained from ports or coastal waters outside of the EEZ with mid-ocean waters, prior to ballast water discharge in U.S. waters.
  - A. *Empty and refill exchange.* Ballast water taken on in ports or coastal waters outside of the U.S. EEZ are discharged until the ballast tank is empty (as close to 100 percent empty as vessel navigation and safety considerations will allow). The tank is then refilled with mid-ocean water.
  - B. *Flow through exchange.* Ballast water taken on in ports or coastal waters outside the U.S. EEZ is discharged out of the ballast water tanks by pumping in mid-ocean water at the bottom of the tank and continuously overflowing the tank from through vent piping or open hatches in the top of the tank. This

pumping continues until three full ballast water tank volumes have been pumped.

2. *Retain ballast onboard the vessel.* A vessel that does not choose to conduct mid-ocean exchange may elect to retain its ballast water onboard while in U.S. waters.
3. *Use an environmentally sound U.S. Coast Guard-approved alternative ballast water management method before the vessel enters the U.S. EEZ.* An alternative environmentally sound method of BWM is any method, effort, action, or program that will prevent and control NIS introductions during ballast water discharge. Although, there are no environmentally sound methods approved by the U.S. Coast Guard yet, we are in the process of developing a program for approving this type of ballast water management. This will be addressed in future rulemakings including appropriate environmental analyses.

Furthermore, the regulations require vessels entering U.S. waters that have operated in and/or beyond the U.S. EEZ during any part of its voyage to maintain records and report vessel, voyage, and ballast water exchange/management information to the National Ballast Information Clearinghouse.

#### **Alternative 2: Proposed Action – Best Management Practices for Vessels Declaring No Ballast Onboard that Enter the Great Lakes**

Under Alternative 2, The Great Lakes Ballast Water Management Program remains and in addition, the masters, owners, operators, or persons-in-charge of vessels equipped with ballast water tanks and a voyage plan including transits to ports or places in the Great Lakes (including the Hudson River, North of the George Washington Bridge), should conduct the following:

- Conduct mid-ocean ballast water exchange during ballast-laden voyages in an area of 200 nautical miles from any shore and in water 2000 meters deep whenever possible, prior to entering the U.S. EEZ.
- For vessels unable to conduct mid-ocean ballast water exchange, conduct a modified ballast water exchange (saltwater flushing) of their empty ballast water tanks in an area of 200 nautical miles from any shore, whenever possible. The vessel should take on as much mid-ocean water into each tank as is safe (for the vessel and crew) in order to conduct saltwater flushing.

The masters, owners, operators, or persons-in-charge of vessels equipped with ballast water tanks, declaring NOBOB and bound for ports or places in the Great Lakes (including the Hudson River, North of the George Washington Bridge) should take particular care to conduct saltwater flushing on the transit to the Great Lakes so as to eliminate fresh and or brackish water residuals in ballast tanks.

## **Alternatives Considered but not Further Analyzed**

### **Discharge ballast water to an approved reception facility**

An approved reception facility is a shoreside ballast water holding or treatment facility that is specifically used to accommodate ballast water discharge from vessels. Currently, there are no ballast water reception facilities in the United States approved for the treatment of ballast water to remove NIS. The Coast Guard is not involved in the regulatory or approval process for ballast water reception facilities. Anyone wishing to establish a ballast water reception facility that would discharge to waters of the United States would need to obtain a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act. There are no requirements for the performance of such a facility for killing or removing NIS from ballast water. Because of these issues, we cannot state with certainty that allowing vessels to discharge their ballast water into a reception facility would be as effective as the best management practices in preventing and NIS introductions. As a result, this alternative will not be analyzed at this time.

### **Ballast Water Discharge Standard**

Ballast water exchange is currently the most commonly used BWM practice, however, it is not considered the optimal long-term practice to prevent introductions of NIS due to constraints on its implementation and effectiveness. For example, rough seas can prevent ballast water exchange due to vessel safety considerations. Some vessel transits do not permit ballast water exchange 200 nautical miles from any shore. Also, complex tank configurations can impair the effectiveness of flow-through exchange. For these reasons and because the efficiency and efficacy of ballast water exchange is highly variable, alternative management practices are being pursued nationally and internationally.

The U.S. Coast Guard continues to engage in a number of initiatives to establish quantitative a ballast water discharge standard. A notice and request for comments (66 FR 21807, May 1, 2001) was published on four possible approaches to setting standards. The request solicited input related to setting, implementing and enforcing appropriate standards. On March 4, 2002, the U.S. Coast Guard published an Advanced Notice of Proposed Rulemaking (ANPRM), "Standard for Living Organisms in Ship's Ballast Water Discharge in U.S. Waters" (67 FR 9632). The U.S. Coast Guard has determined that it will prepare a programmatic EIS (PEIS) as part of the process for developing a ballast water standard and held a series of public meetings around the country to obtain public input as to the appropriate scope of that PEIS (68 FR 5559, September 26, 2003; 68 FR 57479, October 3, 2003).

This alternative, although under development, is not currently available and as a result will not be analyzed at this time.

## **3.0 Environmental Consequences**

### **AFFECTED ENVIRONMENT**

## **Biological Environment**

Both the Proposed Action and the No Action Alternative are directed at providing a regional policy that addresses the impacts on U.S. waters of NIS introductions via NOBOB vessels. The waters of the U.S. are a diverse assemblage of marine, estuarine, and freshwater ecosystems spread over an equally diverse assortment of regions. The Great Lakes region will be the area most affected by NOBOB practices because most NOBOB ships operate in the Great Lakes (the remaining vessels operate in the Hudson River). This section provides a general discussion of aquatic ecological principles, as well as a description of the basic functional components and regional variations of the Great Lakes region. Based on this description of aquatic ecosystems, the impacts of the two alternatives are compared in Section 4. Comparative Analysis of the Proposed Action and the No Action Alternative.

### **Freshwater Ecosystems**

Freshwater ecosystems include rivers, streams, lakes, and wetlands. The two most significant ecosystems in the U.S. are the Great Lakes and the Mississippi River and its associated watersheds. Rivers function as vital transportation corridors for both human activities and natural processes. Rivers transport nutrients from terrestrial systems into coastal areas, and as a result, the condition of rivers can have far-reaching implications. Rivers support a rich and diverse community of species. The Mississippi River alone provides habitat for 241 fish species, 37 mussel species, 45 amphibians, and 50 mammals (EPA 2003). Lakes and streams sustain a diverse community of species including plankton, rooted and floating aquatic plants, grazing snails, clams, insect larvae, crustaceans, fish, and amphibians. Lakes and rivers also form the foundation for broader ecosystems beyond the boundaries of the shoreline. Many terrestrial birds, insects, and mammals depend on these local freshwater ecosystems. Tropical freshwater ecosystems in the U.S. include the Florida Everglades, which contains flora such as sawgrass and swamp lily and fauna such as crayfish, bluegill, Florida gar, and alligator. Thousands of wildlife species occupy U.S. temperate freshwater ecosystems. Freshwater ecosystem species in the U.S. have been greatly impacted by NIS introductions, habitat destruction, and other human mediated factors. The impacts of ballast water discharges are generally limited to port systems of larger lakes and rivers. For example, NIS have become a significant component of the food web in the Great Lakes with 162 aquatic NIS identified by 2001 (NOAA 2003). Additionally, in the Mississippi River, over 100 NIS have been identified across at least nine taxonomic groups (USGS 2005). The projected future extinction rates for freshwater fauna are approximately five times higher than for terrestrial fauna.

### **Ecology of the Great Lakes**

The Great Lakes-Lake Superior, Lake Michigan, Lake Huron, Lake Erie, and Lake Ontario are series of connected freshwater lakes situated between the U.S. and Canada. They were created approximately 10,000 years ago after the retreat of the glaciers. The Great Lakes are the largest freshwater system in the world, spanning 750 miles, containing 84 percent of North America's freshwater supply. They contain a combined

total of 5,500 cubic miles of water and have a total surface area of 94,000 square miles. Additionally, the Great Lakes States and Provinces contain 10 percent of the U.S. population and 31 percent of the Canadian population. More information on the Affected Environment can be found in the Programmatic Environmental Assessment for the Mandatory Ballast Water Management Program for U.S. waters.

Mid-ocean exchange of ballast water has been shown to be approximately 50 to 90 percent effective at removing microorganisms from ballast water (USCG 2001). However studies are lacking on the effectiveness of BWE on nonindigenous fish, invertebrates, and submerged and emergent plants found in the ballast water. Ballast water exchange can reduce the potential for impacts of NIS to organisms, including threatened, endangered, and proposed species such as white abalone and their habitats, particularly in estuarine ecosystem.

NIS were identified as a significant environmental concern in the 1980s with the introduction of the zebra mussel (*Dreissena polymorpha*) to the Great Lakes, most likely via ballast water discharge. The rapidly reproducing zebra mussel first attracted attention by clogging domestic water supply and electric generating facility intake pipes, causing costly infrastructure damage and control management efforts. The zebra mussel has since spread extensively throughout the Great Lakes and the Mississippi River watershed, and continues to cause considerable ecological and economic harm. One study estimates that the total costs of NIS in the United States amount to more than \$137 billion each year (Pimentel *et al.* 1999). Other studies have shown that the rate of NIS introductions to U.S. waters is increasing (Ruiz *et al.* 2000, Carlton, *et al.* 1995). Introduced invasive species have been cited as the second largest threat to endangered species after habitat loss (Wilcove and Chen 1998).

#### **4.0 Comparative Analysis of Proposed Action and No Action Alternative:**

Implementation of the Preferred Action is expected to reduce the number of introduced NIS as compared to the No Action Alternative which will have no influence on continued NIS introductions from NOBOB vessels. NIS introductions risks via NOBOBs are associated with organisms in fresh and brackish residual water and their compatibility to the environment of the Great Lakes. The Preferred Action is designed to reduce the number of these organisms and therefore reduce NIS introductions into the Great Lakes. The No Action Alternative will have no influence on the organisms present in fresh and brackish water residual water of NOBOB vessels.

#### **5.0 Environmental Significance of Proposed Action**

The fundamental purpose of the best management practices are to reduce, if not eliminate, future introductions of NIS into the Great Lakes via ballast water discharges from commercial shipping. The beneficial impacts of this initiative are that if the recommended practices are issued, they will reduce NIS from being introduced into the Great Lakes, and the reporting and sampling requirements will produce valuable data for determining if the Preferred Alternative is effective or if other management options are needed to further prevent NIS introductions into the Great Lakes.

The effectiveness of this recommended alternative substantiates the baseline for creating compliance in incremental stages. The solution to this problem is long-term and the most promising technology to resolve the issue of NIS introductions is anticipated in the foreseeable future.

The voluntary ballast management practices and monitoring program, in addition to the reporting requirements, will have no adverse or beneficial significant impact on the environment.

## **6.0 Identified Environmental Review and Consultation**

This environmental assessment adopts the information and conclusions contained in several other EAs which were coordinated with agencies and persons who provided constructive input.

### *U.S. Coast Guard-Programmatic Environmental Assessment for Ballast Water Management Program for U.S. Waters*

Comment and consultation on this programmatic environmental assessment was solicited by the Environmental Protection Agency, U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. These recognized experts were asked to provide comment regarding the scope of documentation necessary for Coast Guard compliance with NEPA, and the Endangered Species Act, as it pertains to the National Invasive Species Act of 1996 (NISA). All comments were considered in the draft environmental assessment and incorporated in the final environmental assessment. Public comments, the preliminary environmental assessment, and associated studies are available for viewing at the docket website: <http://dms.dot.gov>. Click simple search and then type 19842.

### *U.S. Coast Guard-The Implementation of Voluntary Ballast Water Exchange Guidelines to Protect U.S. Waters From the Spread of Invasive Species*

Comment on this environmental assessment was solicited by the Aquatic Nuisance Species Task Force. These recognized experts were asked to provide comment regarding the scope of documentation necessary for Coast Guard compliance with the National Environmental Policy Act as it pertains to NISA. All comments were considered in the draft environmental assessment and incorporated in the final environmental assessment. Public comments, the preliminary environmental assessment, and associated studies are available at the docket website: <http://dms.dot.gov>. Click simple search and then type 19842.

## **7.0 References**



Carlton, J.T., D.M. Reid, and H. Leeuwen. 1995. Shipping Study – The Role of Shipping in the Introduction of Nonindigenous Aquatic Organisms to the Coastal Waters of the United States (other than the Great Lakes) and an Analysis of Control Options. Final report from the Maritime Studies Program, Williams College, Mystic, CT to the USCG. CG-D-11-95.

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67 FR 9632, March 4, 2002.

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Ruiz, G.M., P.W. Fofonoff, J.T. Carlton, M.J. Wonham, and A.H. Hines. 2000. Invasion of Coastal Marine Communities in North America: Apparent Patterns, Processes, and Biases. *Annual Review of Ecological Systems*. 31:481-531.

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[www.epa.gov/msbasin/index.htm](http://www.epa.gov/msbasin/index.htm) (January 2003).

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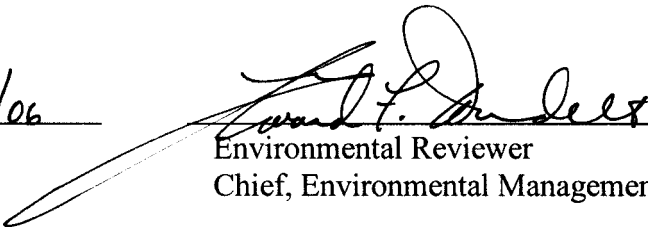
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USCG

FINDING OF NO SIGNIFICANT IMPACT  
FOR  
VOLUNTARY BEST MANAGEMENT PRACTICES FOR VESSELS DECLARING  
NO BALLAST ONBOARD THAT ENTER THE GREAT LAKES

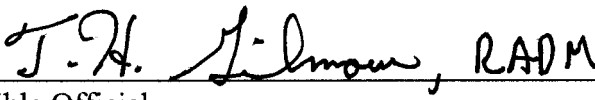
This action has been thoroughly reviewed by the USCG and it has been determined, by the undersigned, that this project will have no significant effect on the human environment. This finding of no significant impact is based on the attached USCG prepared environmental assessment as well as *The Implementation of Voluntary Ballast Water Exchange Guidelines* which is incorporated therein by reference. The EA has been determined to adequately and accurately discuss the environmental issues and impacts of the proposed action and provides sufficient evidence and analysis for determining that an environmental impact statement is not required.

1/17/06  
Date

  
Environmental Reviewer  
Chief, Environmental Management Division

I have considered the information contained in the EA, which is the basis for this FONSI. Based on the information in the EA and this FONSI document, I agree that the proposed action as described above, and in the EA, will have no significant impact on the environment.

1/19/06  
Date

  
Responsible Official  
Assistant Commandant for Prevention